

Molycorp, Inc.
Molybdenum Group
300 Caldwell Avenue
Washington, PA 15301
Telephone (724) 222-5605
Facsimile (724) 222-7336

May 9, 2002

US NRC Region 1
485 Allandale Rd
King of Prussia, PA 19406
Attn. Craig Gordon

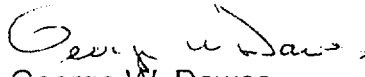
RE: Molycorp, Washington PA
Final Survey Packages

Dear Mr. Gordon:

Molycorps consultant, MACTEC, has completed final status surveys for buildings 29 and 34 located at Molycorps Washington, PA facility. Data for these buildings was previously submitted and ORISE identified areas needing additional efforts. These efforts have been completed and the final packages are enclosed. It is our understanding that confirmatory surveys of these buildings will be done by ORISE during their visit May 20, 2002.

If you have any further questions during this submittal please call me at the above number.

Sincerely,


George W. Dawes
Facility Superintendent

Cc: Ray Cherniske (email) w/o attach
Steve Rima, MACTEC (email) w/o attach
Tom McLaughlin, NRC
Wade Adams, ORISE
Robert Maiers, PA DEP, Harrisburg

Amendment to Appendix F

Building 29 Data Package

Molycorp Washington, PA

May 8, 2002

Building 29 Amendment Data Package

This data package contains additional final status survey information for Building 29, MolyCorp, Washington, PA site. The building was surveyed as an affected building during its initial final status survey. After completion of the final status survey, remedial work activities were performed in the building without post-remedial surveys being performed. During the ORISE visit of April 2002, elevated activity was located on the building's south wall.

In an effort to identify additional elevated areas of activity, wallboard was removed from the inside of the south wall of Building 19 and surrounding wall locations inside the building. Radiological surveys were performed and additional areas of elevated activity were identified on the south wall. Once located, these areas were marked for remediation/removal.

Radiological survey results of the foundation (slab) for Building 29 are not included in this amendment, and should not be considered for release status at this time.

Field data collection forms, survey report forms, statistical test results, and comparisons to release limits are provided.

Summary

Dose rate measurements are not included in this amendment. Dose rate measurements can be found in the initial final status survey report.

Elevated levels of background radiation, from soil radioactivity, continued to be a presence during survey activities.

Results from the final status survey of Building 29 provides evidence that release criteria have been met, demonstrates that residual radioactivity is below the unrestricted use criteria, and confirms that Building 29 (excluding the foundation) is suitable for unrestricted use.

May 8, 2002

Results of Surface Scans

Molycorp - Building 29 Survey Unit (Affected Area)

Building Walls (Interior)

(Not previously reported)

Location (see map)	Beta Scan gross cpm	Beta Scan net cpm	Alpha Scan gross cpm	Alpha Scan net cpm
W1	360	42	1	-0.2
W2	380	62	1	-0.2
W3	380	62	1	-0.2
W4	700	382	2	0.8
W5	463	145	2	0.8
W6	600	282	1	-0.2
W7	450	132	1	-0.2
W8	450	132	1	-0.2
W9	440	122	1	-0.2
W10	400	82	1	-0.2
W11	1100	782	6	4.8
W12	600	282	2	0.8
W13	400	82	2	0.8
W14	340	22	0	-1.2
W15	500	182	1	-0.2
W16	720	402	0	-1.2
W17	1000	682	0	-1.2
W18	490	172	1	-0.2
W19	380	62	0	-1.2
W20	260	-58	0	-1.2
W21	255	-63	0	-1.2
W22	320	2	0	-1.2
W23	480	162	0	-1.2
W24	305	-13	1	-0.2
W25	280	-38	0	-1.2
W26	300	-18	0	-1.2
W27	295	-23	2	0.8
W28	270	-48	4	2.8
W29	260	-58	0	-1.2
W30	282	-36	1	-0.2
W31	320	2	1	-0.2
W32	425	107	0	-1.2
WW1	300	-18	1	-0.2
WW2	300	-18	1	-0.2

All interior wall scans performed with Ludlum 2350-1 No.117563
with 43-106 No. 128912:

Scan MDA Beta - 671 dpm/detector area

Scan MDA Alpha - 48 dpm/detector area

Scan background Beta - 318 cpm

Scan background Alpha - 1.2 cpm

Detector Eff. Beta - .251

Detector Eff. Alpha - .212

Elevated Scan Readings

Molycorp - Building 29 Survey Unit (Affected Area)

Building Walls (Interior)

(Not previously reported)

Location	Beta Scan (net cpm)
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W11	782
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W17	682
-----	-----

Direct Measurements (Total Activity)

Molycorp - Building 29 Survey Unit (Affected Area)

Building Walls (Interior)

(Not previously reported)

Location (see map)	Unshield Beta cpm	Shield Beta cpm	Gross Beta cpm	Bkgd cpm	Net cpm	Direct Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA (dpm/100cm ²)	irect Alpha (1) (dpm/100cm ²)	Instrument Used
W1	276	226	50	8	42	457	152	172	913	1
W2	250	241	9	8	1	11	82	172	22	1
W3	324	294	30	8	22	239	123	172	478	1
W4	768	328	440	8	432	4696	423	172	9391	1
W5	227	199	28	8	20	217	120	172	435	1
W6	461	236	225	8	217	2359	305	172	4717	1
W7	273	278	-5	8	-13	-141	35	172	-283	1
W8	301	295	6	8	-2	-22	75	172	-43	1
W9	311	281	30	8	22	239	123	172	478	1
W10	394	390	4	8	-4	-43	69	172	-87	1
W11	996	336	660	8	652	7409	576	180	14818	2
W12	569	327	242	8	234	2659	352	180	5318	2
W13	663	294	369	8	361	4102	432	180	8205	2
W14	311	281	30	8	22	250	137	180	500	2
W15	503	268	235	8	227	2580	347	180	5159	2
W16	610	278	332	8	324	3682	411	180	7364	2
W17	885	298	587	8	579	6580	543	180	13159	2
W18	464	266	198	8	190	2159	320	180	4318	2
W19	385	232	153	8	145	1648	283	180	3295	2
W20	249	239	10	8	2	23	94	180	45	2
W21	275	264	11	8	3	34	97	180	68	2
W22	274	265	9	8	1	11	92	180	23	2
W23	453	257	196	8	188	2136	318	180	4273	2
W24	289	298	-9	8	-17	-193	22	180	-386	2
W25	261	245	16	8	8	91	109	180	182	2
W26	253	247	6	8	-2	-23	83	180	-45	2
W27	286	249	37	8	29	330	149	180	659	2
W28	262	249	13	8	5	57	102	180	114	2

W29	249	227	22	8	14	159	122	180	318	2
W30	266	246	20	8	12	136	118	180	273	2
W31	314	290	24	8	16	182	126	180	364	2
W32	414	286	128	8	120	1364	260	180	2727	2
WW1	270	205	65	8	57	648	190	180	1295	2
WW2	291	213	78	8	70	795	207	180	1591	2

Interior wall direct measurements were performed with either: #1 -
2224-1 No. 129463 and 43-89 No. 129230

	Beta	Alpha
Wall Efficiency	0.092	0.154
Wall Background (cpm)	8	3.7
Wall MDA (dpm/100 cm2)	172	76

or

#2 - 2360 No. 156321 and 43-89 No. 164832

	Beta	Alpha
Wall Efficiency	0.088	0.153
Wall Background (cpm)	8	3.7
Wall MDA (dpm/100 cm2)	180	76

(1) - A beta to alpha ratio factoring (1:2, beta to alpha) was used to provide a more accurate alpha activity determination then sampling.

Elevated Direct Measurements (Total Activity) and Averaging Results

Molycorp - Building 29 Survey Unit (Affected Area)

(Not previously reported)

Location	Direct Beta (dpm/100cm ²)	Direct Alpha ⁽¹⁾ (dpm/100cm ²)	Over Area (cm ²)	Exceeds Limits		Average Value (over 1 m ²)	Within Limits? Yes/No
				Maximum	Average		
W4	4696	9391	All wall panels with elevated activity marked for removal/remediation				
W6	2359	4717					
W11	7409	14818					
W12	2659	5318					
W13	4102	8205					
W15	2580	5159					
W16	3682	7364					
W17	6580	13159					
W18	2159	4318					
W19	1648	3295					
W23	2136	4273					
WW2		1591					

Removable Surface Activity Measurements

Molycorp - Building 29 Survey Unit (Affected Area)

Building Walls (Interior)

(Not previously reported)

Location (see map)	Removable Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA	Removable Alpha (dpm/100cm ²)	Uncertainty 95% CL	MDA
W1	-6	15.5	150	-0.4	2.2	12
W2	-66	40.5	150	-0.4	2.2	12
W3	-6	15.5	150	-0.4	2.2	12
W4	12	19.5	150	5.3	7.7	12
W5	18	22.8	150	2.4	5.2	12
W6	-96	48.3	150	22.8	16.0	12
W7	42	32.8	150	5.3	7.7	12
W8	0	10.1	150	-0.4	2.2	12
W9	-12	19.5	150	-0.4	2.2	12
W10	-30	28.3	150	-0.4	2.2	12

Ludlum 2929 No. 152202 with 43-10 No.

156519 Info:

	Beta	Alpha
Background (cpm)	47	0.15
Bkgd ct. time	60	60
Sample ct. time	1	1
Efficiency	0.165	0.344
MDA	156	12.0

Elevated Removable Surface Activity Measurements
Molycorp - Building 29 Survey Unit (Affected Area)

No elevated removable surface activity was reported above limits.

Summary of Building Surface Direct Reading (Total Activity) Results **Molycorp - Building 29 Survey Unit (Affected Area)**

Including all building interior wall measurements not previously reported

Beta				Alpha			
n	$\bar{x}$	s	μ_α	n	$\bar{x}$	s	μ_α
20	101	160.4	162.5	20	201	320.9	325.1
	$t_{1-\alpha}$	1.725					

Guidelines/Conditions

Satisfied?

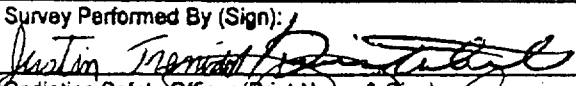
Beta	Alpha
Yes	Yes

DDO-138 Radiation Protection Survey Report				Site: MolyCorp / Washington, PA	
Section 1: Survey Information <i>Characterization / pre remediation survey</i>					
Date: <i>5-2-02</i>		Time: <i>1130</i>		Location: <i>BLDG 29</i>	
RWP Number:		Purpose of Survey: ☐ RWP ☐ Routine Survey ☐ Unconditional Release ☐ Other:		Survey Issue Log Number: <i>02-0158</i>	
				Page <i>1</i> of <i>2</i>	
Survey Title: <i>BLDG 29</i>				Smear Number	Beta dpm/100cm ²
				Alpha dpm/100cm ²	
				1	
				2	
				3	
				4	
				5	
				6	
				7	
				8	
				9	
				10	
				11	
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				16	
				17	
				18	
				19	
				20	
				21	
				22	
				23	
				24	
				25	
26					
Bkgd Readings:					
Legend: 00 = mRem/h gamma 00 C = mRem/h gamma contact ⊙ = Smear Location ▽ = Air Sample Location -X-X-X- = Rope, Boundary, or Barrier 00 β = mRem/h beta 00 βC = mRem/h beta contact -⊙- = Large Area Wipe ⊠ = Bulk Material Sample					
Section 2: Instrument Used					
Instrument Model/SN:	Cal Due Date:	Probe Model/SN:	Cal Due Date:	Detector Eff.: (cpm/dpm)	MDA: β- α B-RKGD Other
<i>2224-1/129463</i>	<i>8-6-02</i>	<i>43-89/129230</i>	<i>8-6-02</i>	<i>0.092/1.154</i>	<i>172/76 8/3.7</i>
<i>2350-1/117563</i>	<i>8-6-02</i>	<i>43-106/129412</i>	<i>8-6-02</i>	<i>0.251/1.212</i>	<i>671/48 318/1.2</i>
<i>2929/152202</i>	<i>2-6-03</i>	<i>43-10/156519</i>	<i>2-6-03</i>	<i>0.165/1.344</i>	<i>156/12 47/1.15</i>
Section 3: Review and Approval					
Survey Performed By (Sign): <i>[Signature]</i>			Area Posted and/or Barricaded: ☐ Yes ☒ No ☐ Not Required		Date and Time: <i>5-2-02 1130</i>
Radiation Safety Officer (Print Name & Sign): <i>Mike McDonald</i>					Date and Time: <i>5-8-02 3:00pm</i>

Bldg # 29

[illegible]

WW = West wall

DDO-138 Radiation Protection Survey Report						Site: MolyCorp / Washington, PA	
Section 1: Survey Information							
Date: 5-7-02		Time: 1530		Location: BLDG 29		Survey Issue Log Number: 02-0159	
RWP Number:		Purpose of Survey: ☐ RWP ☐ Routine Survey ☐ Unconditional Release ☐ Other:				Page 1 of 2	
Survey Title: SOUTH WALL Building 29						Smear Number	Beta dpm/100cm ²
SW 20	SW 21	SW 23	SW 15	SW 16	SW 17	SW 18	Alpha dpm/100cm ²
						SW 19	
SW 22		SW 14					
SW 25		SW 13		SW 11		SW 27	
	SW 24			SW 12		SW 26	
	SW 2		SW 3	SW 4			
		SW 31				SW 30	
	SW 32					SW 29	
Bkgd Readings:							
Legend: 00 = mRem/h gamma 00 C = mRem/h gamma contact ⊙ = Smear Location ∇ = Air Sample Location -X-X-X- = Rope, Boundary, or Barrier 00 β = mRem/h beta 00 βC = mRem/h beta contact -⊙- = Large Area Wipe □ = Bulk Material Sample							
Section 2: Instrument Used							
Instrument Model/SN:	Cal Due Date:	Probe Model/SN:	Cal Due Date:	Detector Eff.: (cpm/dpm)	MDA:	Other	
2350-1/117563	8-6-02	43-85/129230	8-6-02	B ⁻		BKG	
2350-1/117563	8-6-02	43-106/128912	8-6-02	B ⁻ 251/312	B ⁻ 671/48	B ⁻ 318/1.2	
2360-1/156321	8-15-02	43-89/164832	8-5-02	B ⁻ 289/153	B ⁻ 180/56	B ⁻ 8/3.7	
Section 3: Review and Approval							
Survey Performed By (Sign):				Area Posted and/or Barricaded:		Date and Time:	
				☐ Yes ☒ No ☐ Not Required		5-7-02 / 1530	
Radiation Safety Officer (Print Name & Sign):				Date and Time:			
 Mike McDonald				5-8-02 3:00pm			

Survey Area Information:

Instrument Data	Instrument Model/SN	Cal Due	Probe Model/SN	Cal Due	α Scan MDA	β Scan MDA	α Static MDA	β Static MDA

Performed By:	Print Name	Signature	Date
	_____	_____	_____
	_____	_____	_____

Location	β Scan (cpm)	α Scan (cpm)	β Static (unsh) (cpm)	β Static (sh) (cpm)	α Static (cpm)	ER (μ rem/hr)	Smears (dpm/100 cm ²)	
							α	β
* SW-11	1100	6	996	236	4			
* SW-12	600	2	569	327	3			
SW-13	400	2	336	294	2			
SW-14	340	0	311	281	12			
* SW-15	500	1	503	268	4			
* SW-16	770	0	610	278	6			
* SW-17	1000	0	885	298	12			
* SW-18	490	1	464	266	12			
* SW-19	280	0	285	232	7			
SW-20	260	0	249	239	2			
SW-21	255	0	275	264	4			
SW-22	320	0	274	265	7			
* SW-23	480	0	453	257	3			
SW-24	305	1	289	298	3			
SW-25	280	0	261	245	0			
SW-26	300	0	253	247	2			
SW-27	295	2	286	249	4			
SW-28	270	4	262	249	8			
SW-29	260	0	249	227	4			
SW-30	582	1	266	246	5			
SW-31	320	1	314	290	2			
* SW-32	425	0	414	286	2			
* GW-1	300	1	270	205	2			
* W-1	30.0	1	291	213	3			

SW = SOUTH WALL
 WW = WEST WALL

* PANELS MARKED & LOGGED
 TO BE TAKEN TO BLDG 26

SMEARS & DOSE RATES
 PREVIOUSLY TAKEN
 Page 2 of 2

Amendment to Appendix G

Building 32 Data Package

Molycorp Washington, PA

May 8, 2002

Building 32 Amendment Data Package

This data package contains additional final status survey information for Building 32, MolyCorp, Washington, PA site. The building was surveyed as an affected building during its initial final status survey. During the ORISE visit of April 2002, elevated activity was located in the building's overhead.

In an effort to identify additional elevated areas of activity, overhead structures were cleaned and resurveyed. Radiological surveys identified multiple elevated areas, solely on the purlins positioned north to south. These purlins were marked for remediation/removal.

Radiological survey results of the foundation (slab) for Building 32 are not included in this amendment, and should not be considered for release status at this time.

A single survey report form is provided as a portion of this amendment.

Summary

All other final status survey results can be found in the initial final status survey report.

Results from the final status survey of Building 32 provides evidence that release criteria have been met, demonstrates that residual radioactivity is below the unrestricted use criteria, and confirms that Building 32 is suitable for unrestricted use.

May 8, 2002

May 08 02 03:05p MACTEC 740-289-9979 p.1

Amendment to Appendix D

Building 34 Data Package

Molycorp Washington, PA

May 7, 2002

Building 34 Data Package

This data package contains additional final status survey information for Building 34, Molycorp, Washington, PA site. This building was reclassified as affected (during the ORISE visit of April, 2002), and surveyed in accordance with the requirements for an affected status building. Radiological survey results of the foundation (slab) for the building are not included in this amendment, and should not be considered for release status at this time.

Field data collection forms, survey report forms, statistical test results, and comparisons to release limits are provided.

Summary

Four elevated direct readings were identified during the survey of the building's walls and ceiling. Averaging surveys were performed at the four areas and the results are included in this amendment. One area did not pass the averaging test and is being controlled for remediation/removal.

Elevated levels of background radiation, from soil radioactivity, continued to be a presence during survey activities.

Results from the final status survey of Building 34 provides evidence that release criteria have been met, demonstrates that residual radioactivity is below the unrestricted use criteria, and confirms that Building 34 (excluding the foundation) is suitable for unrestricted use.

Results of Surface Scans

Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior) (Lower 2 meters)

Location (see map)	Beta Scan gross cpm	Beta Scan net cpm	Alpha Scan gross cpm	Alpha Scan net cpm
W1	330	50	0.8	-1.2
W2	390	110	1	-1.2
W3	340	60	1.2	-1
W4	354	74	1	-1.2
W5	380	100	1	-1.2
W6	313	33	1.6	-0.6
W7	370	90	0.8	-1.4
W8	300	20	1	-1.2
W9	315	35	0.6	-1.6
W10	295	15	1	-1.2
W11	395	115	1	-1.2
W12	370	90	1.4	-0.8
W13	400	120	0.8	-1.4
W14	350	70	1	-1.2
W15	420	140	1.6	-0.6
W16	600	320	1	-1.2
W17	640	360	2	-0.2
W18	615	335	1	-1.2
W19	450	170	1	-1.2
W20	405	125	1.8	-0.4
W21	330	50	2	-0.2
W22	315	35	1	-1.2
W23	300	20	1.2	-1
W24	290	10	0.6	-1.6
W25	320	40	0.7	-1.5
W26	360	80	1	-1.2
W27	365	85	1	-1.2
W28	390	110	1	-1.2
W29	410	130	1.8	-0.4
W30	370	90	1	-1.2
W31	360	80	1.4	-0.8
W32	415	135	2	-0.2
W33	430	150	1	-1.2
W34	340	60	1	-1.2
W35	380	100	1.6	-0.6
W36	435	155	0.7	-1.5
W37	340	60	1	-1.2
W38	400	120	1	-1.2
W39	410	130	1	-1.2
W40	372	92	0.6	-1.6
W41	390	110	1.4	-0.8
W42	360	80	1	-1.2
W43	400	120	2.3	0.1

W44	350	70	1	-1.2
W45	355	75	1	-1.2
W46	270	-10	1	-1.2
W47	270	-10	1.4	-0.8
W48	260	-20	2	-0.2
W49	310	30	1	-1.2
W50	260	-20	1	-1.2
W51	280	0	1	-1.2
W52	290	10	1.6	-0.6
W53	260	-20	1	-1.2
W54	300	20	1.8	-0.4
W55	280	0	1	0
W56	250	-30	7	6
W57	260	-20	1	0
W58	290	10	0.5	-0.5
W59	270	-10	2	1
W60	250	-30	1	0
W61	320	40	3	2
W62	280	0	1.4	0.4
W63	300	20	3	2
W64	300	20	1	0
W65	320	40	2	1
W66	380	100	1	0
W67	390	110	2	1
W68	300	20	3	2
W69	340	60	2	1
W70	400	120	2	1
W71	500	220	3	2
W72	600	320	4	3
W73	580	300	3	2
W74	580	300	4	3

All interior lower wall scans performed with: Ludlum 2350-1
No.117566 with 43-106 No. 128912

Scan MDA Beta - 630 dpm/detector area
Scan MDA Alpha - 63 dpm/detector area
Scan background Beta - 280 cpm
Scan background Alpha - 2 cpm
Detector Eff. Beta - .251
Detector Eff. Alpha - .212

Results of Surface Scans

Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior)(Upper 2 meters)

Location (see map)	Beta Scan gross cpm	Beta Scan net cpm	Alpha Scan gross cpm	Alpha Scan net cpm
W1	400	120	0.8	-1.2
W2	400	120	2	0
W3	380	100	2	0
W4	320	40	1	-1
W5	340	60	2	0
W6	280	0	2	0
W7	280	0	1	-1
W8	340	60	1	-1
W9	280	0	1	-1
W10	280	0	2	0
W11	280	0	1.6	-0.4
W12	260	-20	2	0
W13	280	0	2	0
W14	280	0	1	-1
W15	300	20	2	0
W16	240	-40	1	-1
W17	240	-40	2	0
W18	260	-20	1.8	-0.2
W19	260	-20	2	0
W20	280	0	2	0
W21	260	-20	2	0
W22	280	0	1	-1
W23	260	-20	2	0
W24	280	0	1	-1
W25	260	-20	2	0
W26	340	60	2	0
W27	300	20	2	0
W28	440	160	1	-1
W29	340	60	1	-1
W30	320	40	2	0

All interior upper wall scans performed with: Ludlum 2350-1
No.117566 with 43-106 No. 128912

Scan MDA Beta - 630 dpm/detector area
Scan MDA Alpha - 63 dpm/detector area
Scan background Beta - 280 cpm
Scan background Alpha - 2 cpm
Detector Eff. Beta - .251
Detector Eff. Alpha - .212

Results of Surface Scans

Molycorp - Building 34 Survey Unit (Affected Area)

Building Ceiling and Structural Members (Interior)

Location (see map)	Beta Scan gross cpm	Beta Scan net cpm	Alpha Scan gross cpm	Alpha Scan net cpm
B1	340	60	1	-1
B2	320	40	1	-1
B3	320	40	2	0
B4	290	10	2	0
Light	260	-20	2	0
B5	300	20	1	-1
C1	310	30	3	1
B6	320	40	2	0
B7	320	40	1	-1
B8	300	20	2	0
B9	300	20	1	-1
B10	310	30	1	-1
B11	300	20	2	0
C2	290	10	2	0

All interior ceiling scans performed with: Ludlum 2350-1
No.117566 with 43-106 No. 128912

Scan MDA Beta - 630 dpm/detector area

Scan MDA Alpha - 63 dpm/detector area

Scan background Beta - 280 cpm

Scan background Alpha - 2 cpm

Detector Eff. Beta - .251

Detector Eff. Alpha - .212

Elevated Scan Readings

Molycorp - Building 34 Survey Unit (Affected Area)

No elevated scans were reported.

Direct Measurements (Total Activity)
Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior) (Lower 2 meters)

Location	Direct Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA (dpm/100cm ²)	Direct Alpha ⁽¹⁾ (dpm/100cm ²)	Instrument Used
W1	51	92	162	102	1
W2	204	120	162	408	1
W3	327	139	162	653	1
W4	-41	69	162	-82	1
W5	378	146	162	755	1
W6	173	115	162	347	1
W7	-122	40	162	-245	1
W8	-122	40	162	-245	1
W9	-173	20	162	-347	1
W10	-61	63	162	-122	1
W11	367	144	162	735	1
W12*	378	232	162	755	1
W13	92	100	162	184	1
W14*	327	228	162	653	1
W15*	490	242	162	980	1
W16	592	172	162	1184	1
W17	194	118	162	388	1
W18	378	146	162	755	1
W19	163	113	162	327	1
W20	602	173	162	1204	1
W21	224	123	162	449	1
W22	31	87	162	61	1
W23	-214	45	162	-429	1
W24	-20	75	162	-41	1
W25	-71	60	162	-143	1
W26	224	123	162	449	1
W27	327	139	162	653	1
W28	31	87	162	61	1
W29	735	188	162	1469	1
W30	255	128	162	510	1
W31	41	89	162	82	1
W32	255	128	162	510	1
W33	347	141	162	694	1
W34	194	118	162	388	1
W35	-418	100	162	-837	1
W36	20	85	162	41	1
W37	0	80	162	0	1
W38	41	89	162	82	1
W39	173	115	162	347	1
W40	-51	66	162	-102	1
W41	-20	75	162	-41	1
W42	61	94	162	122	1
W43	-71	60	162	-143	1
W44	-41	69	162	-82	1
W45	-71	60	162	-143	1
W46	-194	35	162	-388	1

W47	-82	57	162	-163	1
W48	0	80	162	0	1
W49	133	108	162	265	1
W50	-41	69	162	-82	1
W51	224	123	162	449	1
W52	0	80	162	0	1
W53	102	102	162	204	1
W54	551	167	162	1102	1
W55	-173	20	162	-347	1
W56	408	150	162	816	1
W57	-204	40	162	-408	1
W58	-102	49	162	-204	1
W59	-286	69	162	-571	1
W60	20	85	162	41	1
W61	112	104	162	224	1
W62	-194	35	162	-388	1
W63	194	118	162	388	1
W64	-143	28	162	-286	1
W65	-91	63	180	-182	2
W66	0	89	180	0	2
W67	-68	70	180	-136	2
W68	-102	59	180	-205	2
W69	-80	67	180	-159	2
W70	239	135	180	477	2
W71	-125	50	180	-250	2
W72	-193	22	180	-386	2
W73	398	159	180	795	2
W74	-932	181	180	-1864	2

Instrument 1 - Interior wall direct measurements were performed with
2360 No. 145469 and 43-89 No. 145391

	Beta	Alpha
Wall Efficiency	0.098	0.155
Wall Background (cpm)	8	3.7
Cinderblock Wall Background (cpm)	49	3.7
Wall MDA (dpm/100 cm ²)	162	75

Instrument 2 - Interior wall direct measurements were performed with
2360 No. 156371 and 43-89 No. 164832

	Beta	Alpha
Wall Efficiency	0.089	0.153
Wall Background (cpm)	8	3.7
Cinderblock Wall Background (cpm)	49	3.7
Wall MDA (dpm/100 cm ²)	180	76

(1) - A beta to alpha ratio factoring (1:2, beta to alpha) was used to
provide a more accurate alpha activity determination then sampling.

Direct Measurements (Total Activity)
Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior)(Upper 2 meters)

Location	Direct Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA (dpm/100cm ²)	Direct Alpha ⁽¹⁾ (dpm/100cm ²)	Instrument Used
W1	-185	21	172	-370	1
W2	315	143	172	630	1
W3	-272	64	172	-543	1
W4	-33	77	172	-65	1
W5	109	109	172	217	1
W6	54	98	172	109	1
W7	-109	52	172	-217	1
W8	-87	60	172	-174	1
W9	33	93	172	65	1
W10	174	121	172	348	1
W11	-304	74	172	-609	1
W12	-283	67	172	-565	1
W13	54	98	172	109	1
W14	130	113	172	261	1
W15	22	90	172	43	1
W16	-141	37	172	-283	1
W17	22	90	172	43	1
W18	293	140	172	587	1
W19	-109	52	172	-217	1
W20	11	88	172	22	1
W21	-207	37	172	-413	1
W22	-22	80	172	-43	1
W23	87	104	172	174	1
W24	-87	60	172	-174	1
W25	-348	85	172	-696	1
W26	-120	48	172	-239	1
W27	-543	124	172	-1087	1
W28	-76	64	172	-152	1
W29	435	159	172	870	1
W30	207	126	172	413	1

Instrument 1 - Interior wall direct measurements were performed with
 2224-1 No. 129463 and 43-89 No. 169230

	Beta	Alpha
Wall Efficiency	0.092	0.154
Wall Background (cpm)	8	3.7
Cinderblock Wall Background (cpm)	49	3.7
Wall MDA (dpm/100 cm ²)	172	76

(1) - A beta to alpha ratio factoring (1:2, beta to alpha) was used to provide a more accurate alpha activity determination then sampling.

Direct Measurements (Total Activity)
Molycorp - Building 34 Survey Unit (Affected Area)

Building Ceiling and Structural Members (Interior)

Location	Direct Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA (dpm/100cm ²)	Direct Alpha ⁽¹⁾ (dpm/100cm ²)	Instrument Used
B1	446	161	172	891	1
B2	402	155	172	804	1
B3	293	140	172	587	1
B4	-22	80	172	-43	1
Light	-293	71	172	-587	1
B5	-239	52	172	-478	1
C1	65	100	172	130	1
B6	272	136	172	543	1
B7	315	143	172	630	1
B8	457	162	172	913	1
B9	-337	83	172	-674	1
B10	272	136	172	543	1
B11	-120	48	172	-239	1
C2	65	100	172	130	1

Instrument 1 - Interior ceiling direct measurements were performed with
 2360 No. 164680 and 43-89 No. 118544

	Beta	Alpha
Ceiling Efficiency	0.092	0.154
Ceiling Background (cpm)	8	3.7
Ceiling MDA (dpm/100 cm ²)	172	76

(1) - A beta to alpha ratio factoring (1:2, beta to alpha) was used to
 provide a more accurate alpha activity determination then sampling.

Elevated Direct Measurements (Total Activity) and Averaging Results

Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior) (Lower 2 meters)

Location	Direct Alpha (dpm/100cm ²)	Over Area (cm ²)	Exceeds Limits		Averaged Value (over 1 m ²)	Within Limits? Yes/No
			Maximum	Average		
W16	1318	500	No	Yes	994	Yes
W20	1341	400	No	Yes	832	Yes
W29	1636	100	No	Yes	330	Yes
W54	>3000	NA	Yes	Yes	Marked for removal/ remediation	No

Removable Surface Activity Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior) (Lower 2 meters)

Location (see map)	Removable Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA	Removable Alpha (dpm/100cm ²)	Uncertainty 95% CL	MDA	Instrument #
W1	-60	38.8	151	2.3	5.1	12	1
W2	-66	40.5	151	-0.5	2.4	12	1
W3	-24	25.8	151	-0.5	2.4	12	1
W4	12	19.6	151	-0.5	2.4	12	1
W5	-18	22.9	151	-0.5	2.4	12	1
W6	-18	22.9	151	-0.5	2.4	12	1
W7	-12	19.6	151	-0.5	2.4	12	1
W8	115	52.8	151	-0.5	2.4	12	1
W9	-78	43.8	151	-0.5	2.4	12	1
W10	12	19.6	151	-0.5	2.4	12	1
W11	42	32.9	151	-0.5	2.4	12	1
W12	-12	19.6	151	2.3	5.1	12	1
W13	-6	15.7	151	-0.5	2.4	12	1
W14	-36	30.7	151	-0.5	2.4	12	1
W15	-6	15.7	151	-0.5	2.4	12	1
W16	-6	15.7	151	-0.5	2.4	12	1
W17	18	22.9	151	-0.5	2.4	12	1
W18	0	10.3	151	-0.5	2.4	12	1
W19	-24	25.8	151	-0.5	2.4	12	1
W20	12	19.6	151	-0.5	2.4	12	1
W21	6	15.7	151	2.3	5.1	12	1
W22	6	15.7	151	-0.5	2.4	12	1
W23	-18	22.9	151	-0.5	2.4	12	1
W24	-12	19.6	151	-0.5	2.4	12	1
W25	-72	42.2	151	-0.5	2.4	12	1
W26	-12	19.6	151	-0.5	2.4	12	1
W27	6	15.7	151	-0.5	2.4	12	1
W28	12	19.6	151	-0.5	2.4	12	1
W29	-12	19.6	151	-0.5	2.4	12	1
W30	-18	22.9	151	-0.5	2.4	12	1
W31	-6	15.7	151	-0.5	2.4	12	1
W32	-84	45.4	151	-0.5	2.4	12	1

W33	-12	19.6	151	2.3	5.1	12	1
W34	-36	30.7	151	-0.5	2.4	12	1
W35	-24	25.8	151	-0.5	2.4	12	1
W36	12	19.6	151	-0.5	2.4	12	1
W37	24	25.8	151	-0.5	2.4	12	1
W38	-84	45.4	151	-0.5	2.4	12	1
W39	24	25.8	151	-0.5	2.4	12	1
W40	42	32.9	151	-0.5	2.4	12	1
W41	-12	19.6	151	-0.5	2.4	12	1
W42	121	54.1	151	-0.5	2.4	12	1
W43	18	22.9	151	-0.5	2.4	12	1
W44	-18	22.9	151	-0.5	2.4	12	1
W45	-6	15.7	151	-0.5	2.4	12	1
W46	-18	22.9	151	-0.5	2.4	12	1
W47	54	36.9	151	-0.5	2.4	12	1
W48	-12	19.6	151	-0.5	2.4	12	1
W49	60	38.8	151	-0.5	2.4	12	1
W50	-18	22.9	151	-0.5	2.4	12	1
W51	-60	38.8	151	-0.5	2.4	12	1
W52	36	30.7	151	-0.5	2.4	12	1
W53	-60	38.8	151	2.3	5.1	12	1
W54	-54	36.9	151	-0.5	2.4	12	1
W55	-18	22.9	151	-0.5	2.4	12	1
W56	-30	28.4	151	-0.5	2.4	12	1
W57	-24	25.8	151	-0.5	2.4	12	1
W58	-24	25.8	151	-0.5	2.4	12	1
W59	30	28.4	151	-0.5	2.4	12	1
W60	12	19.6	151	-0.5	2.4	12	1
W61	18	22.9	151	-0.5	2.4	12	1
W62	24	25.8	151	-0.5	2.4	12	1
W63	-18	22.9	151	-0.5	2.4	12	1
W64	6	15.7	151	-0.5	2.4	12	1
W65	-12	19.6	151	-0.5	2.4	12	1
W66	48	35.0	151	-0.5	2.4	12	1
W67	42	32.9	151	-0.5	2.4	12	1
W68	6	15.7	151	2.3	5.1	12	1
W69	-18	22.9	151	-0.5	2.4	12	1
W70	-30	28.4	151	-0.5	2.4	12	1
W71	36	30.7	151	-0.5	2.4	12	1
W72	-12	19.6	151	-0.5	2.4	12	1

W73	-12	19.6	151	2.3	5.1	12	1
W74	6	15.7	151	2.3	5.1	12	1

#1 - Ludlum 2929 No. 152202 with 43-10 No.
156519 Info (4-17):

	Beta	Alpha
Background (cpm)	45	0.2
Bkgd ct. time	60	60
Sample ct. time	1	1
Efficiency	0.165	0.344
MDA	151	12.0

Removable Surface Activity Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior)(Upper 2 meters)

Location (see map)	Removable Beta (dpm/100cm2)	Uncertainty 95% CL	MDA	Removable Alpha (dpm/100cm2)	Uncertainty 95% CL	MDA	Instrument #
W1	-12	19.6	152	-0.6	2.6	11.8	1
W2	6	15.6	152	-0.6	2.6	11.8	1
W3	-24	25.7	152	-0.6	2.6	11.8	1
W4	-18	22.9	152	2.3	5.1	11.8	1
W5	-6	15.6	152	-0.6	2.6	11.8	1
W6	0	10.2	152	2.3	5.1	11.8	1
W7	-30	28.3	152	-0.6	2.6	11.8	1
W8	18	22.9	152	-0.6	2.6	11.8	1
W9	24	25.7	152	-0.6	2.6	11.8	1
W10	-18	22.9	152	-0.6	2.6	11.8	1
W11	-12	19.6	152	2.3	5.1	11.8	1
W12	12	19.6	152	-0.6	2.6	11.8	1
W13	-42	32.9	152	-0.6	2.6	11.8	1
W14	18	22.9	152	-0.6	2.6	11.8	1
W15	6	15.6	152	-0.6	2.6	11.8	1
W16	-6	15.6	152	-0.6	2.6	11.8	1
W17	-12	19.6	152	-0.6	2.6	11.8	1
W18	-24	25.7	152	-0.6	2.6	11.8	1
W19	18	22.9	152	-0.6	2.6	11.8	1
W20	6	15.6	152	-0.6	2.6	11.8	1
W21	6	15.6	152	-0.6	2.6	11.8	1
W22	-30	28.3	152	2.3	5.1	11.8	1
W23	-6	15.6	152	-0.6	2.6	11.8	1
W24	18	22.9	152	-0.6	2.6	11.8	1
W25	-18	22.9	152	-0.6	2.6	11.8	1
W26	24	25.7	152	-0.6	2.6	11.8	1
W27	12	19.6	152	-0.6	2.6	11.8	1
W28	6	15.6	152	-0.6	2.6	11.8	1
W29	12	19.6	152	2.3	5.1	11.8	1
W30	6	15.6	152	-0.6	2.6	11.8	1

#1 - Ludlum 2929 No. 152202 with 43-10 No.
156519 Info (4-17):

	Beta	Alpha
Background (cpm)	44	0.13
Bkgd ct. time	60	60
Sample ct. time	1	1
Efficiency	0.165	0.344
MDA	152	11.8

Removable Surface Activity Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

Building Ceiling and Structural Members (Interior)

Location (see map)	Removable Beta (dpm/100cm ²)	Uncertainty 95% CL	MDA	Removable Alpha (dpm/100cm ²)	Uncertainty 95% CL	MDA	Instrument #
B1	12	19.6	152	-0.4	2.1	11.8	1
B2	6	15.6	152	-0.4	2.1	11.8	1
B3	-6	15.6	152	-0.4	2.1	11.8	1
B4	30	28.3	152	2.5	5.3	11.8	1
Light	-36	30.7	152	-0.4	2.1	11.8	1
B5	18	22.9	152	-0.4	2.1	11.8	1
C1	-24	25.7	152	-0.4	2.1	11.8	1
B6	0	10.2	152	-0.4	2.1	11.8	1
B7	-12	19.6	152	-0.4	2.1	11.8	1
B8	-30	28.3	152	-0.4	2.1	11.8	1
B9	-18	22.9	152	-0.4	2.1	11.8	1
B10	-6	15.6	152	-0.4	2.1	11.8	1
B11	-18	22.9	152	-0.4	2.1	11.8	1
C2	0	10.2	152	2.5	5.3	11.8	1

#1 - Ludlum 2929 No. 152202 with 43-10 No.
 156519 Info (4-17):

	Beta	Alpha
Background (cpm)	44	0.13
Bkgd ct. time	60	60
Sample ct. time	1	1
Efficiency	0.165	0.344
MDA	152	11.8

Elevated Removable Surface Activity Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

No elevated removable surface activity was reported above limits.

Exposure Rate Measurements

Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior) (Lower 2 meters)

Location	Exposure Rate (uR/hr)	Net Exp Rate (uR/hr)
W1	11	0
W2	11	0
W3	10	-1
W4	11	0
W5	11	0
W6	11	0
W7	11	0
W8	10	-1
W9	11	0
W10	11	0
W11	11	0
W12	12	1
W13	12	1
W14	13	2
W15	15	4
W16	15	4
W17	18	7
W18	16	5
W19	16	5
W20	15	4
W21	11	0
W22	11	0
W23	10	-1
W24	10	-1
W25	14	3
W26	14	3
W27	12	1
W28	14	3
W29	14	3
W30	15	4
W31	13	2
W32	13	2
W33	13	2
W34	12	1
W35	12	1
W36	12	1
W37	12	1
W38	11	0
W39	11	0
W40	10	-1
W41	10	-1
W42	10	-1
W43	10	-1

W44	8	-3
W45	8	-3
W46	8	-3
W47	9	-2
W48	9	-2
W49	10	-1
W50	9	-2
W51	10	-1
W52	9	-2
W53	10	-1
W54	9	-2
W55	9	-2
W56	9	-2
W57	9	-2
W58	8	-3
W59	8	-3
W60	9	-2
W61	9	-2
W62	9	-2
W63	9	-2
W64	9	-2
W65	10	-1
W66	8	-3
W67	8	-3
W68	9	-2
W69	16	5
W70	14	3
W71	12	1
W72	12	1
W73	13	2
W74	13	2

Background dose rate: 7-16 uR/hr with Model 19, No.115870

Exposure Rate Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

Building Walls (Interior)(Upper 2 meters)

Location	Exposure Rate (uR/hr)	Net Exp Rate (uR/hr)
W1	7	-1
W2	8	0
W3	7	-1
W4	7	-1
W5	7	-1
W6	8	0
W7	8	0
W8	7	-1
W9	7	-1
W10	8	0
W11	6	-2
W12	7	-1
W13	7	-1
W14	6	-2
W15	8	0
W16	7	-1
W17	7	-1
W18	7	-1
W19	6	-2
W20	8	0
W21	8	0
W22	7	-1
W23	7	-1
W24	8	0
W25	8	0
W26	7	-1
W27	7	-1
W28	7	-1
W29	8	0
W30	8	0

Background dose rate: 7-10 uR/hr with Model 19, No.115870

Exposure Rate Measurements
Molycorp - Building 34 Survey Unit (Affected Area)

Building Ceiling and Structural Members (Interior)

Location	Exposure Rate (uR/hr)	Net Exp Rate (uR/hr)
B1	9	1
B2	8	0
B3	9	1
B4	10	2
Light	9	1
B5	9	1
C1	8	0
B6	9	1
B7	8	0
B8	8	0
B9	9	1
B10	8	0
B11	8	0
C2	9	1

Background dose rate: 7-10 uR/hr with Model 19, No.115870

Summary of Exposure Rate Measurements **Molycorp - Building 34 Survey Unit (Affected Area)**

Including all building interior and exterior measurements (excluding floor)

n	$\bar{x}$	s	μ_α
118	0.0	1.9	0.3
$t_{1-\alpha}$	1.658		

Guidelines/Conditions
Satisfied?
 Yes

Summary of Building Surface Direct Reading (Total Activity) Results
Molycorp - Building 34 Survey Unit (Affected Area)

Including all building interior and exterior measurements (excluding floor)

Beta				Alpha			
n	$\bar{x}$	s	μ_α	n	$\bar{x}$	s	μ_α
117	48	249.4	86.0	117	75	473.7	148.0
	$t_{1-\alpha}$	1.658					

Guidelines/Conditions
Satisfied?

Beta	Alpha
Yes	Yes

Section 1: Survey Information

Affected Bldg #34

Site: Malycorp / Washington, PA

Date: 4-17-02 Time: 1700 Location: Upper + Lower Walls
 Survey Issue Log Number: 02-0116
 RWP Number: N/A Purpose of Survey: ☐ RWP ☐ Routine Survey ☐ Unconditional Release ☒ Other
 Page 1 of 10

Survey Title: Affected Bldg #34

Smear Number	Beta dpm/100cm ²	Alpha dpm/100cm ²
1		
2		
3		
4	N	A
5		
6		
7		
8		
9		
10	N	
11		
12		A
13		
14		
15		
16		
17		
18		
19		
20		
21		
22	N	A
23		
24		
25		
26		

2360 #145469 used on lower walls

BKG MDA
 B⁻ 8 162
 α 3.7 75

2360 #156371 used on upper walls 1-30 + 65-74

BKG MDA
 B⁻ 8 180
 α 3.7 76

Model 19 #115870 due 8-6-02

Bkgd Readings: 7-16 micro Rem/hr

Legend:

00 = mRem/h gamma 00 C = mRem/h gamma contact (D) = Smear Location (V) = Air Sample Location -X-X-X- = Rope.
 00 (I) = mRem/h beta 00 (IC) = mRem/h beta contact --D-- = Large Area Wipe = Bulk Material Sample Boundary, or Barrier

Section 2: Instrument Used

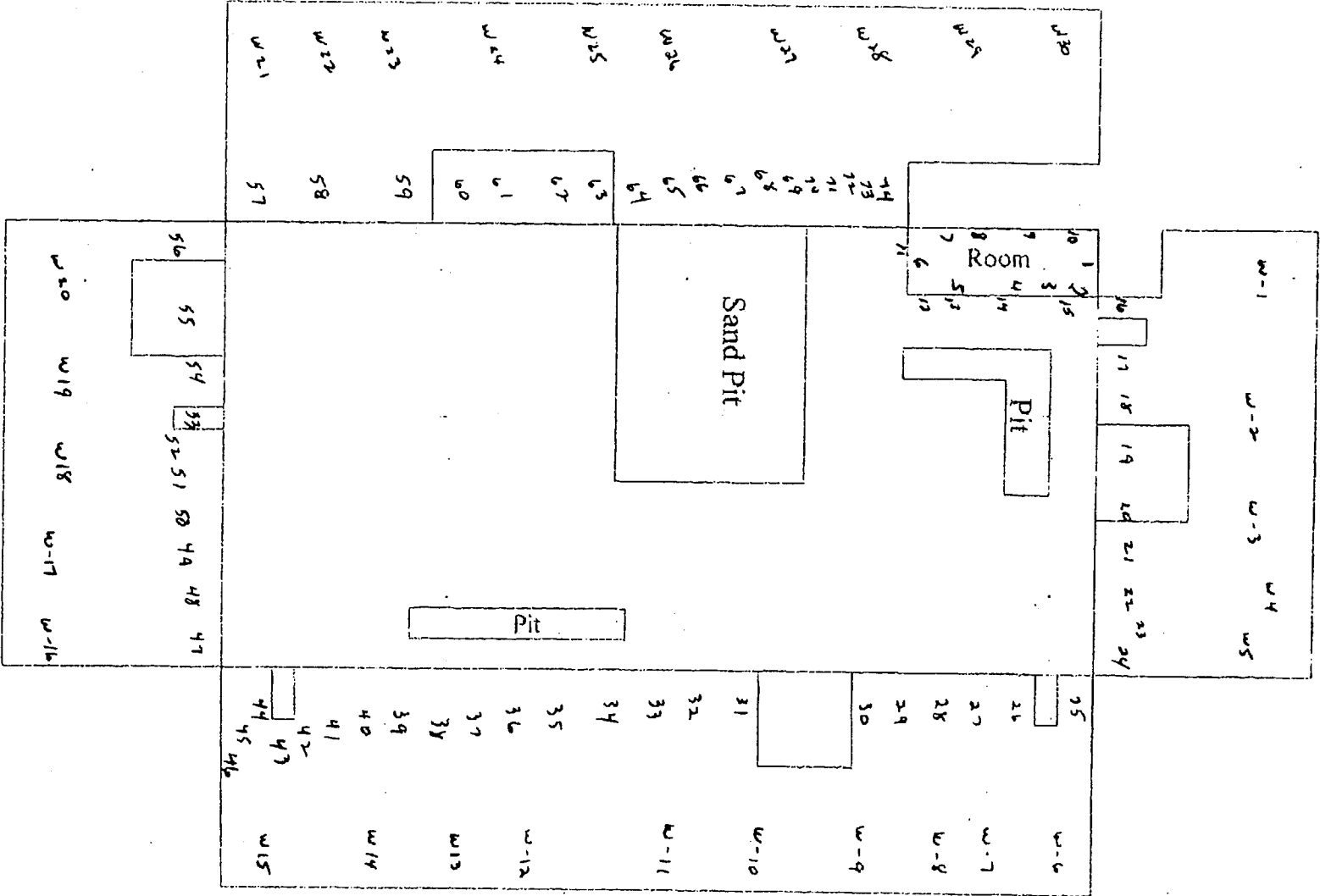
Instrument Model/SN:	Cal Due Date:	Probe Model/SN:	Cal Due Date:	Detector Eff.: (cpm/dpm)	MDA:	Other BKG
2350-1/117566	8-6-02	43-106/128912	8-6-02	B ⁻ 251/312	B ⁻ 630/63	B ⁻ 2804/2
2929/152202	2-6-03	43-10/156519	2-6-03	B ⁻ 165/344	151/12	B ⁻ 45/2
2360/156371	8-15-02	43-89/164832	8-15-02	B ⁻ 289/753	see Above	
2360/145469	7-10-02	43-89/145391	7-14-02	B ⁻ 298/755	see Above	

Section 3: Review and Approval

Survey Performed By (Sign): Mark Blum / Steve Kowalski	Area Posted and/or Barricaded: ☐ Yes ☐ No ☒ Not Required	Date and Time: 4-17-02/1700
Radiation Safety Officer (Print Name & Sign): Mike McDonald		Date and Time: 5-6-02 9:00

Building 34 North

Survey # 02-0116



Interior

Scale:
4m X 4m

Page 2 of 10

Survey Area Information:

Bldg # 34 Interior Walls

Instrument Data	Instrument Model/SN	Cal Due	Probe Model/SN	Cal Due	α Scan MDA	β Scan MDA	α Static MDA	β Static MDA

Performed By: Print Name Steve F.ilo Signature Steve F.ilo Date 4-17-02

Location	β Scan (cpm)	α Scan (cpm)	β Static (unsh) (cpm)	β Static (sh) (cpm)	α Static (cpm)	ER (μ rem/hr)	Smears (dpm/100 cm ²)	
							α	β
W-1	400	.8	284	293	4	7	-0.58	-12
W-2	400	2	281	244	7	8	-0.58	6
W-3	380	2	251	268	7	7	-0.58	-24
W-4	320	1	272	267	12	7	2.3	-18
W-5	340	2	258	240	12	7	-0.58	-6
W-6	280	2	257	244	8	8	2.3	0
W-7	280	1	264	266	5	8	-0.58	-30
W-8	340	1	276	226	7	7	-0.58	18
W-9	280	1	294	283	5	7	-0.58	24
W-10	280	2	253	229	6	8	-0.58	-18
W-11	280	1.6	264	284	5	6	2.3	-12
W-12	260	2	260	278	4	7	-0.58	12
W-13	280	2	260	247	2	7	-0.58	-42
W-14	280	1	264	244	6	6	-0.58	18
W-15	300	2	283	273	7	8	-0.58	6
W-16	240	1	230	235	2	7	-0.58	-6
W-17	240	2	268	258	2	7	-0.58	-12
W-18	260	1.8	287	252	3	7	-0.58	-24
W-19	260	2	258	260	6	6	-0.58	18
W-20	280	2	264	255	1	8	-0.58	6
W-21	260	2	255	266	5	8	-0.58	6
W-22	280	1	267	261	0	7	2.3	-30
W-23	260	2	242	226	1	7	-0.58	-6
W-24	280	1	269	269	1	8	-0.58	18
W-25	260	2	237	261	1	8	-0.58	-18
W-26	340	2	276	279	2	7	-0.58	24
W-27	300	2	274	316	3	7	-0.58	12

Survey Area Information:

Bldg 34 walls only

Instrument Data	Instrument Model/SN	Cal Due	Probe Model/SN	Cal Due	α Scan MDA	β Scan MDA	α Static MDA	β Static MDA

Performed By:	Print Name	Signature	Date
	Justin Treviño Steve Kowalski	Justin Treviño Steve Kowalski	4-17-02 4-17-02

Location	β Scan (cpm)	α Scan (cpm)	β Static (unsh) (cpm)	β Static (sh) (cpm)	α Static (cpm)	ER (μ rem/hr)	Smears (dpm/100 cm ²)	
							α	β
W-1	330	.8	272	259	2	11	2.3	-60
W-2	390	1	289	261	1	11	-.5	-66
W-3	340	1.2	255	215	3	10	-.5	-24
W-4	354	1	202	198	3	11	-.5	12
W-5	380	1	249	204	2	11	-.5	-18
W-6	313	1.6	268	243	3	11	-.5	-18
W-7	370	.8	278	282	2	11	-.5	-12
W-8	300	1	298	302	2	10	-.5	115
W-9	315	1.6	173	182	2	11	-.5	-78
W-10	295	1	191	189	1	11	-.5	12
W-11	395	1	279	235	2	11	-.5	42
W-12	370	1.4	287	201	0	12	2.3	-12
W-13	406	.8	272	225	1	12	-.5	-6
W-14	350	1	288	207	3	13	-.5	-36
W-15	420	1.64	409	312	3	15	-.5	-6
W-16	600	1	475	109	7	15	-.5	-6
W-17	640	2	414	387	4	18	-.5	18
W-18	615	1	330	285	3	16	-.5	0
W-19	450	1	343	319	4	16	-.5	-24
W-20	405	1.8	334	267	3	15	-.5	12
W-21	330	2	228	198	3	11	2.3	6
W-22	315	1	233	222	5	11	-.5	6
W-23	380	1.2	196	209	0	10	-.5	-18
W-24	290	1.6	189	183	3	10	-.5	-12
W-25	320	1.7	181	180	0	14	-.5	-72
W-26	366	1	278	248	3	14	-.5	-12
W-27	365	1	254	214	9	12	-.5	6

Survey Area Information:

Bldg 34 walls only

Instrument Data	Instrument Model/SN	Cal Due	Probe Model/SN	Cal Due	α Scan MDA	β Scan MDA	α Static MDA	β Static MDA

Performed By:	Print Name	Signature	Date

Location	β Scan (cpm)	α Scan (cpm)	β Static (unsh) (cpm)	β Static (sh) (cpm)	α Static (cpm)	ER (μ rem/hr)	Smears (dpm/100 cm ²)	
							α	β
W-28	390	1	229	218	15	14	-1.5	12
W-29	410	1.8	303	223	6	14	-1.5	-12
W-30	370	1	241	208	4	15	-1.5	-18
W-31	360	1.4	230	218	5	13	-1.5	-6
W-31QC			236	217	3	13	2.3	-48
W-32	415	2	278	245	3	13	-1.5	-84
W-33	430	1	303	261	5	13	2.3	-12
W-34	340	1	245	218	6	12	-1.5	-36
W-35	380	1.6	229	262	1	12	-1.5	-24
W-36	435	.7	374	364	2	12	-1.5	12
W-37	340	1	360	352	4	12	-1.5	24
W-38	400	1	241	229	3	11	-1.5	-84
W-39	410	1	231	206	12	11	-1.5	24
W-40	372	1.6	199	196	1	10	-1.5	42
W-41	390	1.4	218	212	2	10	-1.5	-12
W-42	360	1	163	149	1	10	-1.5	121
W-43	400	2.3	188	187	1	10	-1.5	18
W-44	350	1	170	166	1	8	-1.5	-18
W-45	355	1	206	205	1	8	-1.5	-6
W-46	270	1	208	219	1	8	-1.5	-18
W-47	270	1.4	168	168	2	9	-1.5	54
W-48	260	2	124	166	2	9	-1.5	-12
W-49	310	1	182	161	1	10	-1.5	60
W-50	260	1	166	162	2	9	-1.5	-18
W-51	280	1	198	168	2	10	-1.5	-60
W-52	290	1.6	182	174	2	9	-1.5	36
W-53	260	1	184	166	1	10	2.3	-60

Bldg. 34 Walls only

Performed By:	Print Name	Signature	Date

Page 7 of 10

Section 1: Survey Information

Affected Bldg 34

Date: 4-25-02

Time: 0730

Location:
Bldg 34

Survey Issue Log Number
02-0116

RWP Number. NA

Purpose of Survey:

☐ RWP ☐ Routine Survey ☐ Unconditional Release ☒ Other.Page 9 of 10

Survey Title:

Bldg 34

Smear Number	
-----------------	--

Beta
dpm/100cm²

Alpha
dpm/100cm²

Skqo Readings: 7-10 mins

Legenda:

00 = mRem/h gamma 00 C = mRem/h gamma contact @ = Smear Location ▽ = Air Sample Location -X-X- = Rope.
00 β = mRem/h beta 00 βC = mRem/h beta contact -D- = Large Area Wipe = Bulk Material Sample Boundary, or Barrier

Section 2: Instrument Used

Instrument Model/SN:	Cal Due Date:	Probe Model/SN:	Cal Due Date:	Detector Eff.: (com/dpm)	MDA:	Other
Model 19/115870	8-6-02	—	—	—	—	—
2929/152202	2-6-02	43-10/156519	2-6-02	B ⁻ 1.65 1.344	B ⁻ 152 11.8	B ⁻ 44 BK9 4.13
2224-1/129463	8-6-02	43-89/169230	8-6-02	B ⁻ .092 1.154	B ⁻ 172 76	B ⁻ P BK9 3.7
2350-1/117566	8-6-02	43-106/128912	8-6-02	B ⁻ .251 1.212	B ⁻ 630 63	B ⁻ 280 BK9 2

Section 3: Review and Approval

Survey Performed By (Sign):

Mark Blouin
Radiation Safety Officer (Print Name & Sign)

Area Posted and/or Barricaded:

☐ Yes ☐ No ☒ Not Required

Date, and Time:

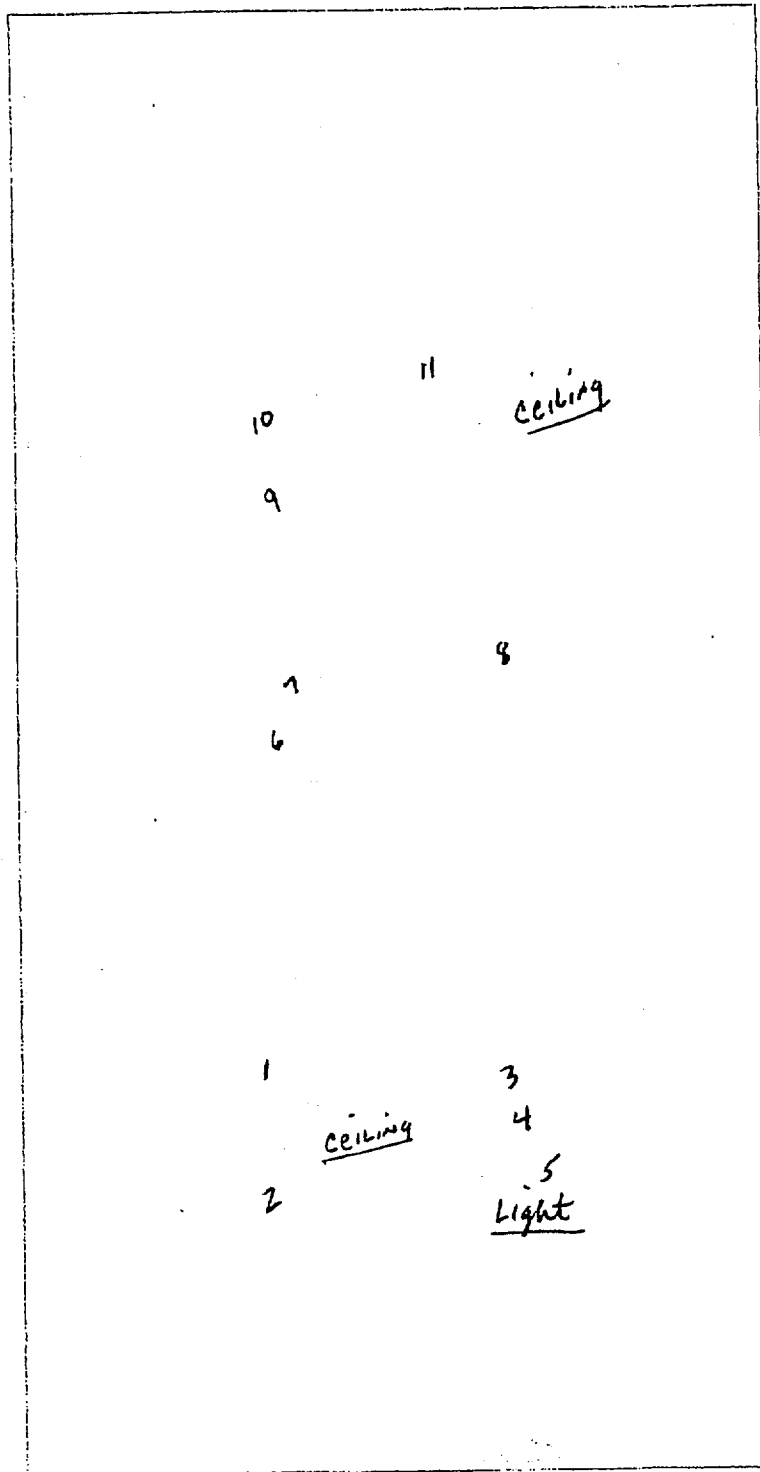
4/25/02 / 0730

Date and Time:

5-7-02 9:00

Building 34
North

Survey
02-0116



Ceiling

Scale:
4m x 4m

Page 8 of 10

DDO-138 Radiation Protection Survey Report				Site: MolyCorp / Washington, PA		
Section 1: Survey Information						
Date: 5-6-02	Time: 1330	Location: Bldg 34	Survey Issue Log Number: 02-0146			
RWP Number: 2/0	Purpose of Survey: ☐ RWP ☐ Routine Survey ☐ Unconditional Release ☐ Other:			Page 1 of 3		
Survey Title: 1 SQUARE METER AVE. FOR W16, 20, 229				Smear Number	Beta dpm/100cm ²	Alpha dpm/100cm ²
W-54 WAS > 3k dpm/100cm ² α AREA IDENTIFIED AND LOGGED FOR LATER REMEDIATION				1		
				2		
				3		
				4		
				5		
				6		
				7		
				8		
				9		
				10		
				11		
				12		
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		
				21		
				22		
				23		
				24		
				25		
				26		
Bkgd Readings:						
Legend: 00 = mRem/h gamma 00 C = mRem/h gamma contact ⊙ = Smear Location ∇ = Air Sample Location -X-X-X- = Rope, Boundary, or Barrier 00 β = mRem/h beta 00 βC = mRem/h beta contact -⊙- = Large Area Wipe □ = Bulk Material Sample						
Section 2: Instrument Used						
Instrument Model/SN:	Cal Due Date:	Probe Model/SN:	Cal Due Date:	Detector Eff.: (cpm/dpm)	MDA:	Other
2360/156371	8-15-02	43-10/164832	8-5-02	α.153 β.088	α 76 β 180	α 3.7 β 8
N A N A N A						
Section 3: Review and Approval						
Survey Performed By (Sign):			Area Posted and/or Barricaded: ☐ Yes ☐ No ☒ Not Required		Date and Time: 5-6-02 1330	
Radiation Safety Officer (Print Name & Sign):			Mike McDonald		Date and Time: 5-7-02 9:00	

Radiological Survey Results - Calculational Sheet

Location	β Static (unsh) (cpm)	β Static (sh) (cpm)	Gross β	Minus Bkgd = (Net β)	Net β dpm/100 cm ²
W-16	514	437	77	69	784
	530	479	51	43	489
	487	476	11	3	34
	516	495	21	13	147
	521	498	23	15	171
	555	511	44	36	409
	543	465	78	70	796
	603	505	98	90	1023
	577	519	58	50	568
					4421 / 491
W-20	335	263	72	64	727
	284	275	9	1	11
	287	245	42	34	386
	333	292	41	33	375
	305	214	31	23	261
	303	271	32	24	273
	335	281	54	46	523
	320	262	58	50	659
	291	279	12	4	455
					3670 / 408
W-29	329	339	-10	-18	-205
	354	372	-18	-26	-296
	347	327	20	12	136
	349	339	10	2	23
	341	353	-12	-20	-227
	339	349	-10	-18	-205
	283	336	-53	-61	-693
	347	338	9	1	11
	367	366	1	-7	-79
					-1569 / -174

Instrument Model/SN:	Probe Model/SN:	Detector Eff. (cpm/dpm)

Material	Bkgd

W-16

$$592 \left(\frac{500}{10,000} \right) + 491 \left(1 - \frac{500}{10,000} \right)$$

02-0146

$$30 + 467$$

$$\beta^{-} \overset{\text{DPM}}{497 \text{ AVE.}} \propto \overset{\text{DPM}}{994 \text{ AVE.}}$$

SEE
PAGE
2

W-20

$$602 \left(\frac{400}{10,000} \right) + 408 \left(1 - \frac{400}{10,000} \right)$$

SEE
PAGE
2

$$24 + 392$$

$$\beta^{-} \overset{\text{DPM}}{416 \text{ AVE}} \propto \overset{\text{DPM}}{832 \text{ AVE}}$$

W-29

$$735 \left(\frac{100}{10,000} \right) + -174 \left(1 - \frac{100}{10,000} \right)$$

SEE
PAGE
2

$$7 + -172$$

$$\beta^{-} \overset{\text{DPM}}{-165 \text{ AVE}} \propto \overset{\text{DPM}}{-330 \text{ AVE}}$$

Page 3 of 3